Title: Communication Complexity

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Abstract: This work deals with communication complexity, which considers model of two (or more) parties, each holding its own binary input (let's say x and y). Each of players has information only about his own input. Their common goal is to compute value of some function $f(x, y)$ of these inputs. Communication complexity measures amount of information communicated between players in order to compute $f(x, y)$. This work especially concerns two main models - deterministic, in which all decision made by players is deterministic and they compute the right value in all cases and probabilistic model which allows randomized fashion and the goal of the players is to compute the right value with high enough probability. We present some basic concepts and methods to lower bound communication complexity of functions, all ilustrated on some examples of basic functions. In the end we present some complex and practically relevant examples, on which presented methods are demonstrated.

Keywords: communication complexity, deterministic communication model, randomized model, lower bounds on communication complexity.